

Soap and Other Detergents of Antiquity

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The Greeks, Romans, Egyptians, Babylonians, and other ancient nations of high culture form only apparent exception to the rule that the civilization of a people is proportional to its consumption of soap, for, although these nations used little soap in the strict sense of the word, they employed several other substances of similar properties.

Two of these cleansing agents are mentioned in the Bible. "borith" in Jeremiah II, 22, and Malachi III, 2 and "nether" in the same passage of Jeremiah and in several of the Proverbs of Solomon. In the English Bible these Hebrew words are translated by "soap" and "niter."

Borith was an alkali obtained from the ashes of plants, in other words, crude potash. The nether of the Bible was probably the native sodium carbonate, or natron, the nitrum of the Romans, which is found in Egypt, around the Caspian Sea, and in other desert regions and which is still collected for laundry use in Egypt. "Alkali," the Arabian equivalent of nether, appears also to have been impure soda for, although it was obtained from the ashes of a plant, this plant was probably the samphire or saltwort (Sarcocolla) which, like many other seashore plants, contains soda but not potash.

The ancients also used as a cleansing agent the mucilaginous sap of certain plants, probably species of soapwort (Saponaria).

Another ancient detergent was putrid urine, which owes its cleansing properties to the ammonia which it contains. At the commencement of the Christian era the Roman laundrymen (fullones) possessed the privilege of maintaining public urinals in the streets, and, two centuries later, their business was so lucrative that it was subjected to a special tax. In Roman laundries the garments were first washed with lye and then laid in shallow earthen vessels, sprinkled with urine and trodden with the feet. They were afterward rinsed in water and exposed to the air to remove the odor of urine. The laundries were so offensive that they were placed outside of the city or in outlying quarters. Putrid urine is still used in washing in many parts of the world.

Soap made by combining grease and alkali appears to have been first mentioned by Pliny in the first century. It is described, not as a detergent, but as a pomade employed by the Gauls to give the hair a fine gloss and a reddish tint. Both hard and soft soap were made from goat's fat and beech ashes. The soap must also have contained coloring matter, but this is not mentioned. The Romans adopted from the Gauls the use of soap, and employed it extensively on the hair. Pliny says that the Gauls invented soap, but it is more probable that they adopted it from the Germans, who, in turn, may have obtained the knowledge of it from the Levant.

The use of soap in washing is first mentioned, in the second century, by Galen, who adds, however, that the Romans used various earths in washing the face. Probably soap remained an article of luxury, employed as a cosmetic and occasionally as a medicine, during the second and third centuries, while the older cleansing agents were generally used in the laundry and toilet. It is even doubtful whether the saponarii of the fourth century were soapmakers, or manufacturers of cosmetics in general. In Germany the use of soap has been traced back to the reign of Charlemagne, about 800 A. D., but soap-making was at first a household art, not a trade. Until later in the Mid-

dle Ages soap was used only for washing the person and the finest articles of clothing, while ordinary garments were washed with lye made by pouring hot water on a bag filled with wood ashes.—Translated from Prometheus, for the Scientific American.

DAHLIA PLANTING SEASON.

Present Day Types Brought to Excellence by Culture.

In 1784 Vincent Cervantes, director of the botanical garden in the City of Mexico, sent to Cavanilles, the director of the Madrid botanical garden, a plant unknown to botanists. It was a tall, spindly affair, with nothing little flowers, each of which had a yellow central disk surrounded by five or six red or orange petals. Cavanilles called it dahlia, in honor of the recently deceased Swedish botanist, Dahl. But when the plant came to Germany, where the name dahlia had already been given to another plant, the botanist Willdenow conferred upon the newcomer the name Georgina, by which name it has been universally known in Germany until within recent years. This name was given in honor, not of George III of England, as has been commonly assumed, but of a Russian explorer named Georgi. Dahlias were great rarities in Europe until Humboldt and Bonpland brought back a quantity of seed on their return from Mexico.

Botanists and gardeners soon noticed the extraordinary facility with which the color of the flowers could be varied, and their interest increased when the first double dahlia was produced in 1808. Then arose a keen rivalry in the production of new varieties of form and color among the English and German florists. Prizes amounting to hundreds of dollars, were offered for the finest new sorts. In Germany as recently as the seventies three or four dollars was sometimes paid for one flower.

The English florist took the lead in the development of the dahlia until about 1835, after which they were hard pressed by the Germans. In 1836 one of the latter exhibited 200 varieties, mostly of his own production. Alexander Von Humboldt, who had watched the dahlia's triumphal progress with keen interest, was astounded by the effect of cultivation on the one-time modest field flower of Mexico.

The florists' lists of thirty years ago contained about 2,000 varieties of dahlias, and the whole number of varieties produced up to the present time is between 5,000 and 6,000. These are not all in existence, however, as many even of the most celebrated soon die out. Today the different types of dahlias have reached a higher degree of perfection than ever before, and the present-day dahlias are indeed a work of art, for few would believe it possible that such grand results could be obtained from such a lowly origin.—Los Angeles Times.

She Escaped.

Intelligent men and women hurrying along a street presumably have individual objects in view and yet, between Franklin Park and Pennsylvania avenue people paused yesterday to watch:

A young man rolling two automobile wheels together, as a boy rolls a hoop:

A laborer who let a section of gas pipe fall from his shoulder to the pavement;

A batch of children playing hopscotch;

A balky horse attached to a buggy, and a young woman in such ridiculous slippers that she could barely peg along.

In line with these exciting incidents was a thin-faced woman sawing tunes on a fiddle, and with an open-mouthed bag dangling suggestively from her arm. She escaped notice.—Washington Star.

The worst thing about appearances, to the Chicago News, is trying to keep them up.

INTENSE COLD IN THE TROPICS.

Recent Measurements at a Height of Eleven and Thirteen Miles.

The existence of a layer of air in which the temperature ceases to diminish with elevation has been observed in various parts of the world. It is about ten miles up, though its altitude varies somewhat. The temperatures are ascertained with "sounding balloons," which carry up self-registering thermometers and barometers. The latter give indications of the height attained. The balloons are not accompanied by human beings, but the instruments are so cushioned that they cannot suffer from a fall and are labelled so that recovery is comparatively easy.

An expedition dispatched by A. Lawrence Rotch, of the United States, and a French expert, Teisserenc de Bort, last summer tried to make soundings of the atmosphere over the Atlantic near the equator at a considerable height. Though some of the balloons sent up by this party rose nearly ten miles, they failed to reach the "isothermal layer," where the cold would not increase. Their thermometers continued to register lower temperatures the higher they rose. Mr. Rotch was confident that the isothermal layer really existed, but suspected that it was at a greater elevation than was reached by the instruments. It now appears that a German expedition sent out to East Africa by Dr. Assmann found that at a level considerably above that to which balloons went over the Atlantic not only was almost unprecedented cold found, but above it there was a comparatively warm stratum. This was discovered last December over Lake Victoria, near the equator. The change from intense cold to moderate temperatures was observed twice—once at an elevation of 56,000 feet above (about eleven miles) and once at 65,000 feet (barely thirteen miles).

Especially remarkable, says Dr. Assmann, is the great average decrease of temperature with altitude found over Lake Victoria; the lowest temperature encountered at 65,000 feet was 119 below zero, Fahrenheit, with a temperature at the ground (3,800 feet above sea level) of 79 above zero, a difference of almost 200 degrees! The variability of the temperature at high levels is enormous in equatorial as well as in higher latitudes. Two ascents gave readings at 56,000 feet of 105 below zero, respectively.

In addition to the ascents of sounding balloons a number of small pilot balloons were sent up to great altitudes to explore the direction and velocity of the upper air currents, and these showed the presence of an uppermost current of air blowing nearly from due west, and flowing above the regular easterly current of the equatorial region. A similar discovery was made some time ago at Cairo, Egypt, by B. F. E. Keeling.

The ascents over Lake Victoria were made from a low powered launch, and would have yielded better results had a faster boat been available. It is stated that with a vessel having a speed of some twelve miles an hour this lake is the best place in the world for sounding balloon ascents.

Dramatic Humor in China.

At most towns we have called at theatricals formed one of the sights. The din and discord of the band attracted us more than once even if the play had no fascination. It matters little or not at all to a foreigner what the plot is all about, as this drags on for two or three days, sometimes longer. We witnessed a screaming act which was evidently the punishment inflicted on the villains of the drama. Three men in almost a state of nudity were being soured with buckets of water and making many grimaces as the cold douche was dashed in their faces. Judging by the frantic shouts of the audience this "situation" was evidently the height of dramatic humor, and as we strolled away the poor villains were still taking their punishment as stage villains should.—Shanghai Mercury.

THROWING RED HOT RIVETS.

Spectacular Exhibition by Ironworkers in an Uptown Building.

Where they are building the largest apartment hotel in the world, at Eighty-sixth and Eighty-seventh streets, Amsterdam avenue and Broadway, there is a daily exhibition of the skill with which ironworkers handle redhot rivets.

Not only do the slingers have to throw the redhot rivets almost half the length of the building but they also have to pitch them up through the framework for two or three stories.

From the street below you can see the bright fires burning in the portable furnaces. The slinger is armed with a long pair of tongs. About fifty feet away stands another man with a little wooden keg. He is situated so that he can conveniently keep the ironworkers supplied with rivets. He has four or five sets of ironworkers to watch, and to keep them supplied all the time keeps the man with the keg on the jump.

When a rivet reaches the required heat the slinger removes it from the bellows with the tongs. He draws his arm back as far as he can and with an underhand slink sends the redhot rivet forward. The man with the keg watches the rivet and has the keg placed in such a position that the rivet flies into it and hits the bottom with a bang. Then he removes the rivet with tongs and passes it to a waiting ironworker.

The most spectacular feature of all is to see a slinger send one of the redhot rivets up through the building, from one floor below to another. This requires special accuracy because the man with the keg above can only move a certain distance to either side. In most cases he is sitting astride a steel beam. From constant practice the men who do the slinging are so accurate that they never waste a rivet.—New York Sun.

CONCERNING FISH EGGS.

Simple Means by Which the Hatching of Them May Be Expedited.

The Aquarium received lately from the United States Fisheries Bureau 5,000,000 white perch eggs—the eggs of this species are very small—which have been placed in hatching jars in the Aquarium's model fish hatchery.

The period of incubation of fish eggs depends largely on the temperature of the water in which they are spawned or placed. Whitefish eggs in water of a temperature of 53 degrees would hatch out in about three days; in water of a temperature of 53 degrees, that being about the present temperature of the Croton water as it flows into the Aquarium's tanks, whitefish eggs require for hatching a period of from fifteen to twenty days.

The susceptibility of fish eggs to temperature makes it possible to do things with them that could not be done otherwise. If in such a hatchery as the Aquarium, for instance, with its limited space, it should be desirable to expedite the hatching of a batch of eggs to make room in jars or troughs for other eggs, this can be done by the simple expedient of raising the temperature of the water.

When the eggs are in the hatchery water is all the time kept running into the jars or troughs and running off, in constant circulation, to give the eggs aeration; but this circulation can be suspended for a comparatively brief time without injury. By shutting off the inflow of new water the temperature of the standing water in which the eggs would then remain would be in an hour or two perceptibly raised by the warmth of the surrounding air in the building; and by the increase of warmth in the water the hatching of the eggs would be accelerated. When little fishes are about ready to come out a hatching that might have extended through a week can by this means be completed in a day.—New York Sun.

Pies will be soggy if set on top of a hot stove after being baked.